



## ecology and environment, inc.

International Specialists in the Environment

1940 Webster Street, Suite 100  
Oakland, California 94612  
Tel: (510) 893-6700, Fax: (510) 550-2760

January 18, 2013

U.S. Environmental Protection Agency  
75 Hawthorne Street  
San Francisco, CA 94105

TDD No: TO2-09-12-07-0006  
E & E Project No: EE-002693-2191

Attention: Chris Reiner, Federal On-Scene Coordinator

**Subject: Cesi Cleaners Vapor Intrusion Assessment Report**  
**2001 Tully Road, Modesto, Stanislaus County, California**  
Latitude: 37° 40' 26.22" N, Longitude: 121° 00' 50.56" W

### INTRODUCTION

In July 2012, the United States Environmental Protection Agency (U. S. EPA) Federal On-Scene Coordinator (FOSC) Chris Reiner tasked Ecology and Environment, Inc's (E & E's) Superfund Technical Assessment and Response Team (START) to conduct indoor and ambient air sampling to assess potential releases of tetrachloroethene (PCE) and other chlorinated solvents from the former Cesi Dry Cleaning Center site located at 2001 Tully Road in Modesto, Stanislaus County, California. Between July 31 and August 1, 2012, U.S. EPA and START collected four residential indoor air samples, four residential crawlspace air samples, and one ambient air sample for analysis of select volatile organic compounds (VOCs).

This assessment was performed to document whether or not contaminants of potential concern (COPC) are entering residential structures located adjacent to and near the former Cesi Dry Cleaning Center facility through vapor migration and to document potential elevated COPC concentrations in ambient air adjacent to the former dry cleaning facility. This report was prepared to document the field assessment activities and analytical results.

### SITE DESCRIPTION

Cesi Dry Cleaning Center (site) is a former dry cleaning facility that occupied one lease space within the commercial shopping center located at 2001 Tully Road in Modesto, Stanislaus County, California. The approximate 6.20-acre property (parcel number 060-008-035) is occupied by two large commercial buildings with 23,320 square feet of retail space. The former Cesi Dry Cleaning Center operated in unit 2021, occupying approximately 1,428 square feet of retail space. The former dry cleaning facility is bordered by residential properties to the north, south, east, and west.

During this assessment, indoor and ambient air sampling and analysis was conducted at four residential properties in the immediate vicinity of the former Cesi Dry Cleaning Center facility and at one background location in the front yard of a residence up and cross wind of the site. These properties include: **Exemption 6: privacy**  
**Exemption 6: privacy** (Attachment A, Figures 1 and 2).

The property at Exemption 6: privacy is located approximately 150 feet to the west of the former dry cleaners, Exemption 6: privacy is located approximately 150 feet to the southwest of the former dry cleaners, Exemption 6: privacy is located approximately 200 feet to the southwest of the former dry cleaners, Exemption 6: privacy is located approximately 250 feet to the southwest of the former dry cleaners. All four properties are single-story, single-family residential structures which include subfloor crawlspaces. In addition, one background sample was collected at Exemption 6: privacy, which is located approximately 450 feet northwest of the former dry cleaners.

## BACKGROUND

As part of the investigation of this site, START reviewed the report written by the California Department of Toxic Substances Control (DTSC) Site Screening Assessment (SSA), dated June 7, 2011 (DTSC, 2011). When the Cesi Dry Cleaning Center initially opened at 2001 Tully Road, records indicate that it may have operated under the fictitious address of 2021 Tully Road. Specific information about operations is unknown as Cesi Dry Cleaning Center never registered in the DTSC hazardous waste generator manifest system. Previous investigations conducted by the City of Modesto concluded that groundwater and soil vapor near the former Cesi Dry Cleaning Center site may have been impacted by PCE and associated weathering products, due to the historic use of chlorinated dry cleaning solvents.

In October 2002 the City of Modesto reported the presence of PCE in groundwater and soil gas at locations in the alley behind the dry cleaners. The City of Modesto reported the presence of PCE in groundwater at a concentration of 15.0 micrograms per liter ( $\mu\text{g/L}$ ) and in soil gas (collected at 12 feet below ground surface) at a concentration of 310,000 micrograms per cubic meter ( $\mu\text{g/m}^3$ ), (DTSC 2011). In April 2003 the City of Modesto reported that there were no detectable concentrations of PCE in soil gas or groundwater nearby and up-gradient from the site (DTSC, 2011).

The DTSC, in conjunction with the City of Modesto Redevelopment Agency (MRA), is actively involved in addressing sources of contamination and identifying potential impacts to Modesto residents from dry cleaning chemicals. DTSC and MRA entered into a Voluntary Cleanup Agreement, and in March 2011 the MRA included the Cesi Dry Cleaning Center site in its investigation of groundwater contamination caused by area dry cleaning businesses (Regional Water Quality Control Board (RWQCB) Site Screening Assessment, 2011).

The DTSC requested assistance from the U.S. EPA with indoor air sampling at four nearby residential properties to determine whether residents are being exposed to VOCs in indoor air and to evaluate the extent of the soil gas plume. In July 2012 U.S. EPA FOSS Chris Reiner tasked START to conduct indoor and ambient air sampling at residential properties adjacent to and nearby the former Cesi Dry Cleaning Center.

## START ACTIVITIES

In order to support U.S. EPA environmental data collection activities, START identified project data quality objectives (DQOs) and prepared a July 30, 2012, *Quality Assurance Sampling Plan for Vapor Intrusion Assessment and Associated Sampling* (QASP) in conjunction with the U.S. EPA FOSC. All field sampling, shipping, storing, handling, and analysis methods were performed in accordance with the procedures and methods described in the QASP, contained in Attachment B. There were no deviations from the QASP.

During this assessment a total of four indoor air samples, four crawlspace air samples, and one background ambient air sample were collected. In addition, one co-located duplicate sample, and one method/trip blank sample were collected for quality assurance/quality control (QA/QC) purposes.

Indoor air samples were collected at four occupied residential structures to assess potential vapor intrusion of COPCs from contaminated or potentially contaminated soil and groundwater beneath each structure's sub-flooring. For each residence, one sample was collected from an indoor area commonly accessed by the homeowner (i.e. bedrooms, kitchens, and living rooms), and a second sample was collected in the crawlspace of the residence to assess COPC concentrations at the foundation of the structure where vapor concentrations were likely to be greatest.

One ambient air sample was collected from the front yard of the residential property located at Exemption 6: privacy. This ambient air sampling location was selected based on close proximity to the former Cesi Dry Cleaning Center facility to assess COPC concentrations in ambient air, near the contaminant source area. The air sample collected from the front yard at Exemption 6: privacy was positioned in an area where the ground was not covered by pavement, and suspended approximately three feet above ground surface at the approximate height of a child's breathing zone.

Prior to mobilizing, 6-liter SUMMA canisters (SUMMAs) and calibrated flow regulators were obtained from the analytical laboratory, Air Toxics Ltd. (ATL) located in Folsom, California. The SUMMAs and matched flow regulators were tested by ATL and certified free of the COPCs down to the laboratory's method detection limits.

Immediately prior to installing the flow regulator and deploying the SUMMA, the initial vacuum pressure in each SUMMA was measured using a certified, calibrated vacuum pressure gauge. The vacuum pressure, sample name, start time, and canister number were recorded on the sample label upon deployment. Clean nitrile gloves were used by persons handling the SUMMAs. START placed the SUMMAs in the desired sample location and opened the orifice. For crawlspace sample collection, the SUMMA was placed in the crawlspace if the interior access hatch was accessible. In homes where the hatch was not accessible or the homeowner was not aware of the hatch location, certified COPC-free extension wands, procured from the analytical laboratory were used. The wands extended the sample collection orifice up to 5 feet for collection of an air sample in spaces too small for placement of a SUMMA (e.g. a sealed crawl space). Co-located duplicate samples were collected by placing a second SUMMA immediately adjacent to the primary sample. Sample locations were photographed after the deployment of each SUMMA. All samples were collected over an approximate 24-hour period from July 31, 2012, to August 1, 2012, to represent a 24-hour human exposure scenario.

Upon retrieval, the date, collection time, sampler's initials, and final vacuum pressure were recorded on the sample label. This information was also recorded on the chain-of-custody documentation. The regulator was removed from the SUMMA and the canister was capped and placed in a sample shipment container. A signed custody seal was placed on each sample container for shipment to ATL.

During the sampling event one SUMMA was used as a trip/method blank. Similar to field samples, the SUMMA used as a blank was taken to the site, the vacuum pressure was measured, and the sample information was recorded on the label and the chain-of-custody form. The blank SUMMA sample was then re-capped and packaged for shipment to ATL along with the field samples. Photographic documentation of the field assessment activities is included as Attachment C.

### **Analytical Results**

Air samples were analyzed by Air Toxics LTD., in Folsom, California, for PCE and its degradation products trichloroethylene (TCE); cis-1,2-dichloroethylene (DCE); trans-1,2-DCE; 1,1-DCE; 1,1,1-trichloroethane; 1,1,2-trichloroethane; and vinyl chloride by EPA Method TO-15 (modified), with selected ion monitoring (SIM). A START chemist conducted Tier 2 data validation in accordance with the April 1990 *Quality Assurance/Quality Control guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures* (EPA/540/G-90/004 OSWER Directive 9360.4-01), prepared by U.S. EPA (U.S. EPA 1990). All data were found to be acceptable for use as definitive data. A summary of analytical results is presented in Table 1, Attachment D. Laboratory Analytical Data Validation Reports are included as Attachment E.

Analytical data for COPCs were compared to the 2005 California Human Health Screening Levels (CHHSLs) for residential indoor air and the May 2012 U.S. EPA Regional Screening Level (RSL) for residential air.

Published laboratory reporting limits (RLs) are estimated based on optimal conditions, in the case where it was beyond technical capability of the laboratory to reach the screening level(s), the laboratory RL was used in place of the screening level for analytical data evaluation. The laboratory reporting limit exceeded one or both of the residential indoor air screening levels (CHHSLs/RSLs) for 1,2-dichloroethane (1,2-DCA), 1,1,2-trichloroethane, and vinyl chloride. In these instances, it is unknown whether concentrations of COPCs exceed the regulatory residential indoor air screening level(s).

Of the eight air samples analyzed, none of the samples contained PCE at a concentration exceeding either the CHHSL ( $0.412 \mu\text{g}/\text{m}^3$ ) or the RSL ( $9.4 \mu\text{g}/\text{m}^3$ ). Breakdown products of PCE were not detected in any of the samples. 1,2-DCA was not detected at concentrations above the laboratory RL in samples; however, the RL is above both the RSL ( $0.094 \mu\text{g}/\text{m}^3$ ) and the CHHSL ( $0.116 \mu\text{g}/\text{m}^3$ ), so it is unknown whether 1,2-DCA is present at concentrations between the RSL and the RL. 1,1,2-trichloroethane was not detected at concentrations above the RL; however, the RL is above the RSL ( $0.15 \mu\text{g}/\text{m}^3$ ) so it is unknown whether 1,1,2-trichloroethane is present in concentrations between the RSL and the RL. Vinyl chloride was not detected at concentrations above the RL; however, the RL is above the CHHSL ( $0.031 \mu\text{g}/\text{m}^3$ ) so it is unknown whether vinyl chloride is present at concentrations between the CHHSL and the RL.

including one co-located duplicate sample and one Method/Trip blank. The duplicate sample did not contain PCE at a concentration exceeding either the CHHSL ( $0.412 \mu\text{g}/\text{m}^3$ ) or RSL ( $9.4 \mu\text{g}/\text{m}^3$ ). 1,2-DCA, 1,1,2-trichloroethane and vinyl chloride were not detected at concentrations above their RLs in any of the samples analyzed; however the RLs are above the so it is unknown whether any of these compounds are present at concentrations between the RSL and the RL.

Analytical results for the Method/Trip blank did not document any concentrations of COPCs above the CHHSLs or the RSLs.

## **SUMMARY AND CONCLUSIONS**

The U.S. EPA tasked START to collect samples at residences adjacent to the Cesi Dry Cleaners Site to determine whether or not COPCs are entering residential structures located near the site through the soil gas to indoor air exposure pathway. Concentrations of PCE were not detected above the CHHSL and RSL in indoor air at all four residential structures sampled. The common products of decomposition of PCE were not detected above their CHHSL or RSL in any samples, although RLs for some of these compounds exceeded project screening levels. At this time, PCE and products of the decomposition of PCE do not appear to be entering the residential structures nearest to the site through soil gas migration.

Please contact me at (510) 893-6700 if you have any questions regarding START's activities associated with this project.

Respectfully,

(b) (6)

START Project Manager

### Attachments:

Attachment A: Figures

Figure 1 – Site Vicinity Map

Figure 2 – Site Location Map

Attachment B: Quality Assurance Sampling Plan for Vapor Intrusion Assessment and Associated Sampling

Attachment C: Photograph Documentation

Attachment D: Table

Table 1 – Residential Indoor and Ambient Air Analytical Data Summary

Attachment E: Laboratory Analytical Data Validation Reports



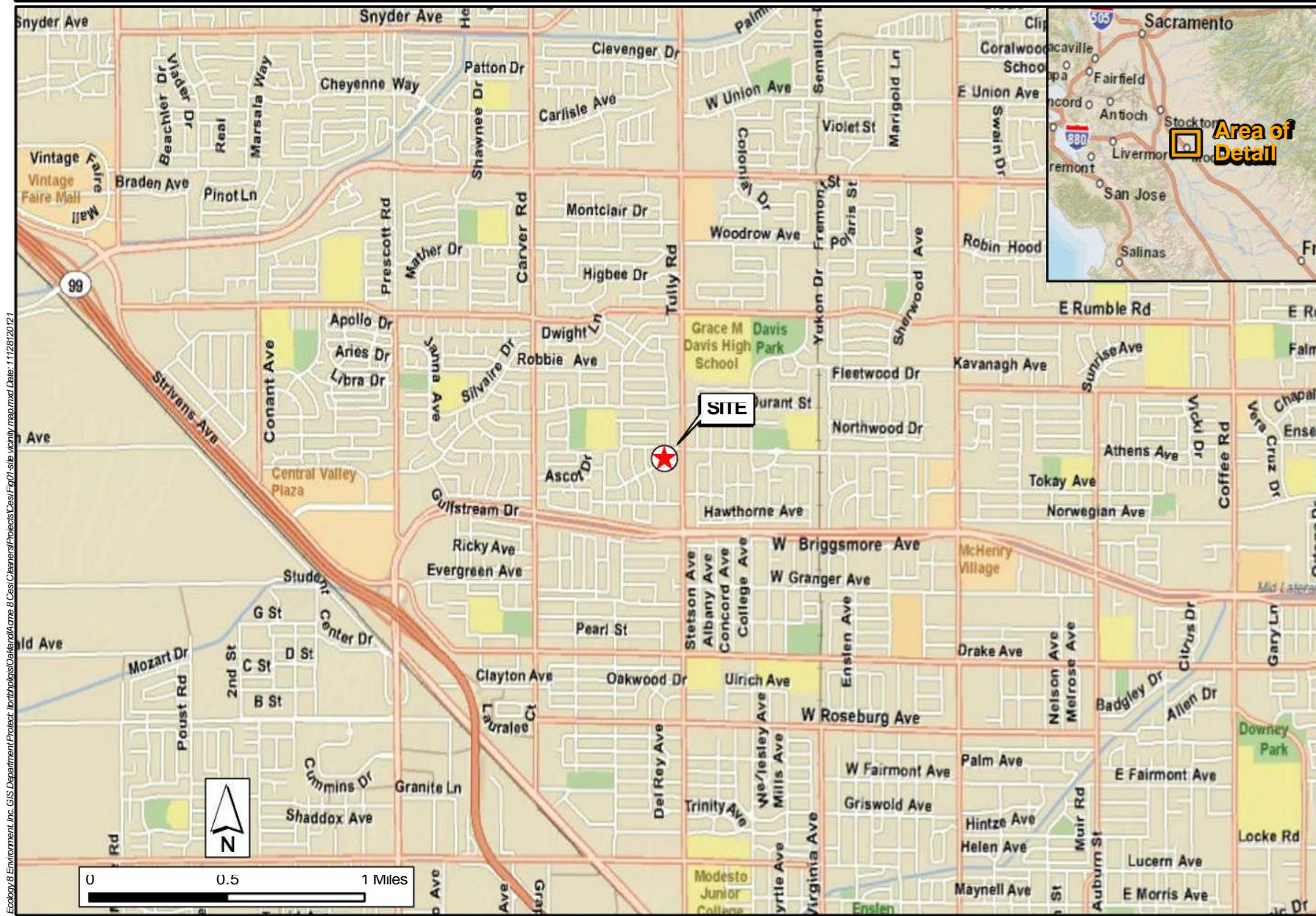


Figure 1  
**Site Vicinity Map**  
**Cesi Cleaners**  
2001 Tully Road, Modesto, California



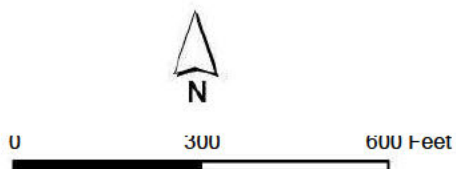
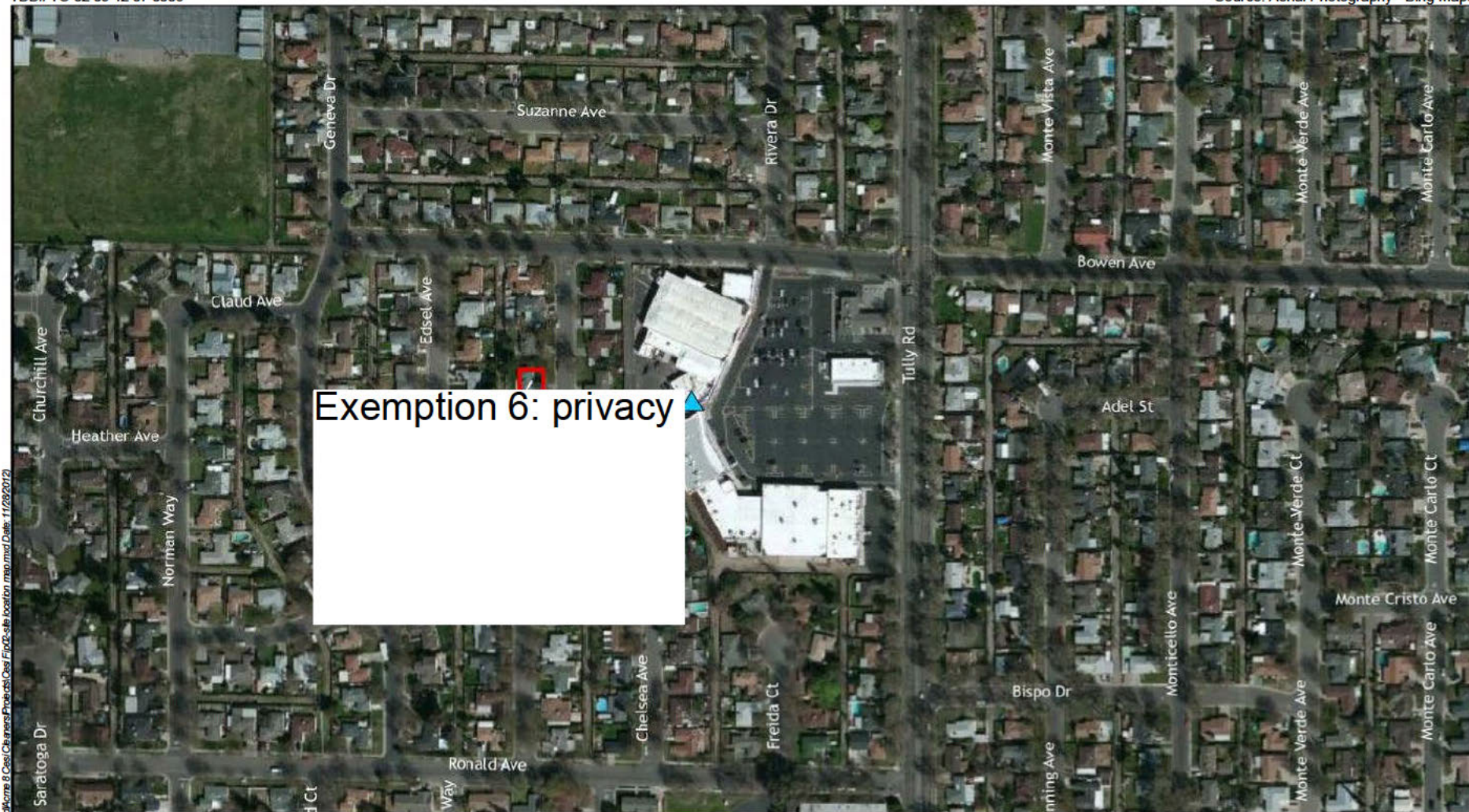


Figure 2  
**Site Location Map**  
**Cesi Cleaners**  
2001 Tully Road, Modesto, California





**Table 1. Residential Indoor and Ambient Air Analytical Data Summary**

Cesi Cleaners  
Modesto, Stanislaus County, California

TDD No.: TO-02 09-12-07-0006  
Project No.: 002693.2191

Analyte	Sample ID:		CS-CHL-1938-IND-001	CS-CHL-1938-SF-002	CS-CHL-2002-IND-003	CS-CHL-2002-SF-004	CS-CHL-1934-IND-005	CS-CHL-1934-IND-1005	CS-CHL-1934-SF-006	CS-CHL-1930-IND-007	CS-CHL-1930-SF-008	CS-CHL-2009-AMB	CS-BLANK-8112	
	Sample Location and Description:		Exemption 6: privacy Indoor Air Sample Living Room/Kitchen	Exemption 6: privacy Crawl Space Sample	Exemption 6: privacy Indoor Air Sample Kitchen	Exemption 6: privacy Crawl Space Sample	Exemption 6: privacy Indoor Air Sample Infant's Bedroom	Exemption 6: privacy Indoor Air Sample Infant's Bedroom (Duplicate)	Exemption 6: privacy Crawl Space Sample	Exemption 6: privacy Ave. Indoor Air Sample Master Bedroom	Exemption 6: privacy Ave. Crawl Space Sample	Exemption 6: privacy Ave. Front Yard Ambient Air Sample	Trip Blank	
			Collection Date:		7/31/12 - 8/1/12	7/31/12 - 8/1/12	7/31/12 - 8/1/12	7/31/12 - 8/1/12	7/31/12 - 8/1/12	7/31/12 - 8/1/12	7/31/12 - 8/1/12	7/31/12 - 8/1/12	7/31/12 - 8/1/12	7/31/12 - 8/1/12
	U.S. EPA Modified Method TO-15 SIM Analysis (all results in µg/m3)													
Tetrachloroethene (PCE)	0.412	9.4		<0.24	<0.22	<0.24	<0.23	<0.26	<0.29	<0.23	<0.24	<0.26	<0.23	<0.14
Trichloroethene (TCE)	1.22	0.43		<0.19	<0.17	<0.19	<0.18	<0.20	<0.23	<0.18	<0.19	<0.20	<0.18	<0.11
cis-1,2-Dichloroethene	36.5	NA		<0.14	<0.13	<0.14	<0.14	<0.15	<0.17	<0.14	<0.14	<0.15	<0.14	<0.079
trans-1,2-Dichloroethene	73	63		<0.70	<0.64	<0.70	<0.68	<0.75	<0.86	<0.68	<0.70	<0.74	<0.68	<0.40
1,1-Dichloroethene	NA	210		<0.070	<0.064	<0.045	<0.068	<0.075	<0.086	<0.068	<0.070	<0.074	<0.068	<0.040
1,2-Dichloroethane	0.116	0.094		<0.14*	<0.13*	<0.14*	<0.14*	<0.15*	<0.17*	<0.14*	<0.14*	<0.15*	<0.14*	<0.081
1,1,1-Trichloroethane	2290	5200		<0.19	<0.18	<0.19	<0.19	<0.21	<0.24	<0.19	<0.19	<0.20	<0.19	<0.11
1,1,2-Trichloroethane	NA	0.15		<0.19*	<0.18*	<0.19*	<0.19*	<0.21*	<0.24*	<0.19*	<0.19*	<0.20*	<0.19*	<0.11
Vinyl Chloride	0.031	0.16		<0.046*	<0.041*	<0.045*	<0.044*	<0.048*	<0.055*	<0.044*	<0.046*	<0.048*	<0.044*	<0.026*
California Human Health Screening Level (CHHSL) for Indoor Air, Residential, January 2005 (µg/m3)			Notes:											
			Air Samples Analyzed by U.S. EPA Modified Method TO-15 Selected Ion Monitoring Analysis											
			* Laboratory detection limit exceeds the screening level											
			NA- Not Available											
USEPA Residential Screening Level (RSL), May 2012 (µg/m3)			BOLD - Exceeds Action Level											
			µg/m³ micrograms per cubic meter											



**U.S. EPA Emergency Response Section (ERS)  
and Superfund Technical Assessment and Response Team (START)**

**Quality Assurance Sampling Plan  
for  
Vapor Intrusion Assessment and Associated Sampling**

**Response Location(Site Name) : Cesi Cleaners**

**TDD #:02-09-12-07-0006**

**START Project #: 002693.2191.01RA**

**Date: July 25, 2012**

**Prepared by: Seth Heller**

**Reviewed by: Howard I. (b) (6) July 30, 2012**

**Approved by:**

**This sampling plan was prepared and delivered to the EPA OSC (select one):**

**X Prior to Sampling**

**Post Sampling (within one month of sampling)**

**This field sampling plan is intended to be used in conjunction with the EPA's Region 9 Emergency Response Section's (ERS) Generic Data Quality Objectives (DQOs) for Removal Assessments Involving Vapor Intrusion and with the generic Sampling and Analysis Plan (SAP) for Removal Assessments and Removal Support Assessments of Vapor Intrusion Sites.** Since the field sampling plans it is for a project supporting the U.S. EPA Region 9 ERS, this document is reference as a Quality Assurance Sampling Plan (QASP). This QASP has been designed to ERS and START personnel in their preparation for collecting, analyzing, shipping, storing and handling samples collected during an emergency response. The use of this QASP will involve forethought and planning that should help direct the sampling and analytical work. It is meant to be used for all ERS Vapor Intrusion site projects. Sampling teams should always reference standard quality procedures, standard operations procedures, standard methods for specific sampling and analytical guidance.

The development of this QASP will improve the documentation, communication, planning, and overall quality associated with the sampling and analysis by:

- 1) encouraging field teams to consider their goals and objectives before the generation of environmental data,
- 2) documenting predetermined information in a standardize format,
- 3) increasing the communication between sampling personnel and decision makers, and
- 4) detailing expectations and objective before samples are collected.

**1.0 Introduction and Background.** *Describe the site and specify the geographic boundaries for the site, contaminants of concern and any specific areas of concern. What is the problem, what precipitated the response, which agencies and other entities (e.g., contractors) are on site, who has taken the lead for the response and for environmental clean-up actions?*

This investigation of the former Cesi Cleaners in Modesto, California site is driven by a Department of Toxic Substances Control (DTSC) preliminary groundwater investigation which concluded in June of 2011. The site is located at 2021 Tully Road,, Modesto, California. The DTSC report shows that one groundwater sample collected in the immediate vicinity of the former drycleaner site is above the Maximum Contaminant Level (MCL) for tetrachloroethylene (PCE). The DTSC groundwater investigation did not include soil gas sampling and analysis at the Cesi Cleaners site property or indoor air at any nearby residences.

This investigation by the U.S. EPA Emergency Response and START expands the previous DTSC area of interest by including up to five of the closest residences to the Cesi Cleaners site. The selected residences are 5 single family structures situated to the west and southwest of the former Cesi Cleaners site. This investigation will focus on the indoor air and sub-foundation (sub-slab) sampling and analysis.

**20 Objectives.** *Brief statement on the general project objectives and goals. What question is to be resolved? Specific objectives are summarized in Table D.*

Air sampling and analysis will be conducted in living areas and in sub-slab areas at residences adjacent to the former Cesi Cleaners. The resulting analytical data will be compared to residential and industrial criteria to determine if subsurface PCE contamination presents a breathing hazard to residents. The data will be used by FOSC Chris Reiner to assist with determining whether additional remedial action is necessary.



**21 Data Use Objectives.**

Data that are generated will be used:

To compare with site-specific action levels or risk-based action levels (e.g., SSL, MRL, ESL, etc) to determine if an acute or chronic health threats exist.

**2.2 Sampling Objectives.** (What are you proposing to do?)

- |   |   |  |
|---|---|--|
| 1 | X | Soil vapor sampling between under foundation.            |
| 2 | X | Indoor air sampling in crawl space of a raise foundation |
| 3 | X | Indoor air sampling within structures                    |

**23 Data Type**

In general, data type and data needs should be decided prior to data generation. The data can be generally divided into three categories: definitive methodology data (generally data generated using standardize methods), non-definitive methodology data (also referred to as screening data) and screening data with at least 10% definitive conformation. Typically definitive data is generated for VI assessment sites. Reported data should be verified (by a party other than the laboratory) as meeting specific quality control and data category requirements by following a verification or validation procedure. Refer to the VI SAP for specific quality parameters and requirements.

Check appropriate box(es):

- |   |   |  |
|---|---|--|
| A |   | <u>Definitive data will be generated.</u> The sampling must be done on an emergency basis.<br><b>Due to the time critical situation, preliminary data must be reported and may be used to make decisions without validation. The generated analytical documentation packages will be reviewed and validated. Qualified data will be reported after validation.</b> |
| B | X | <u>Definitive data will be generated.</u> <b>Full documentation will be required. Analytical data packages will be reviewed and validated prior to reporting.</b>  |

**24 Contaminants of Concern**

The contaminants of potential concern (COPC), proposed analytical method, proposed action levels and available reporting limit are summarized in Table A1. The analytical method is typically U.S. EPA TO-15. Applicable Action level and Reporting Limits are found in the VI SAP.

<b>Table A1</b> <b>Contaminants of Concern</b> <b>By U.S. EPA TO-15 or equivalent method</b>			
<b>COPC</b>	<b>Soil Vapor Action Level</b>	<b>Indoor Air Action Level</b>	<b>Available Reporting Limit</b>
Tetrachloroethylene (PCE)	4.2 µg/m <sup>3</sup>	0.412 µg/m <sup>3</sup>	0.2 µg/m <sup>3</sup>

**30 Approach and Sampling Methodologies****3.1 Sampling Approach**

The sampling approaches as Judgmental (Biased)

**3.2 Field Sampling****3.2.1 Sampling Collection Equipment**

Field equipment requirements are summarized in Table B.

<b>Table B</b> <b>Field Sampling Equipment</b>					
<b>Matrix</b>	<b>Sampling Equipment</b>	<b>Quantity</b>	<b>Dedicated or Reusable</b>	<b>Decon Solution</b>	<b>Resource/ Contractor</b>
TO-15 for indoor	5-liter Summa Canisters or Equivalent	13	Dedicated	N/A	ATL
	▫ Mass flow controller	13	Dedicated	N/A	ATL
	▫ Certified Pressure Meter	1	Reusable	N/A	START
	▫ Stainless steel tubing and fittings for raise foundations	5	Dedicated	N/A	START
TO-15 for Soil Vapor under foundation	▫ Hand Held Power Drilling Equipment				
	▫ Hand pump for purging				
	▫ Stainless steel tubing and fittings				
	▫ Certified Pressure Meter				
TO-15 for Soil Vapor General	▫ Direct Push Drilling Equipment				
	▫ 1-liter Summa Canisters or Equivalent				
	▫ Teflon tubing and fittings				
	▫ Certified Pressure Meter				
Other Methods	▫ Cartridges				
	▫ Sampling pumps				
	▫ Fitting and tubing				
	▫ Pump Calibrator				

**3.2.2 Sample Locations**

Indicate the name of each sampling location ( i.e. address, room) and type of sample to be collected (e.g. soil vapor grab, 24-hr indoor air, crawl-space air grab, 24-hr ambient air, sub-slab soil vapor grab)and describe the rationale for the each sample location chosen.

Indoor air samples will be collected from five single family residences located west and southwest of the former Cesi Cleaners. The five residences that are sampled will be selected on-scene from nine potential homes based on allowed access. The structures are the closest residential structures to the Cesi Cleaners site. Collected samples will be analyzed for PCE. START and U.S. EPA will be certain to inquire with residents regarding the recent use of paints, and other VOC containing items and refraining from use of these confounding chemicals during the time of sample collection.

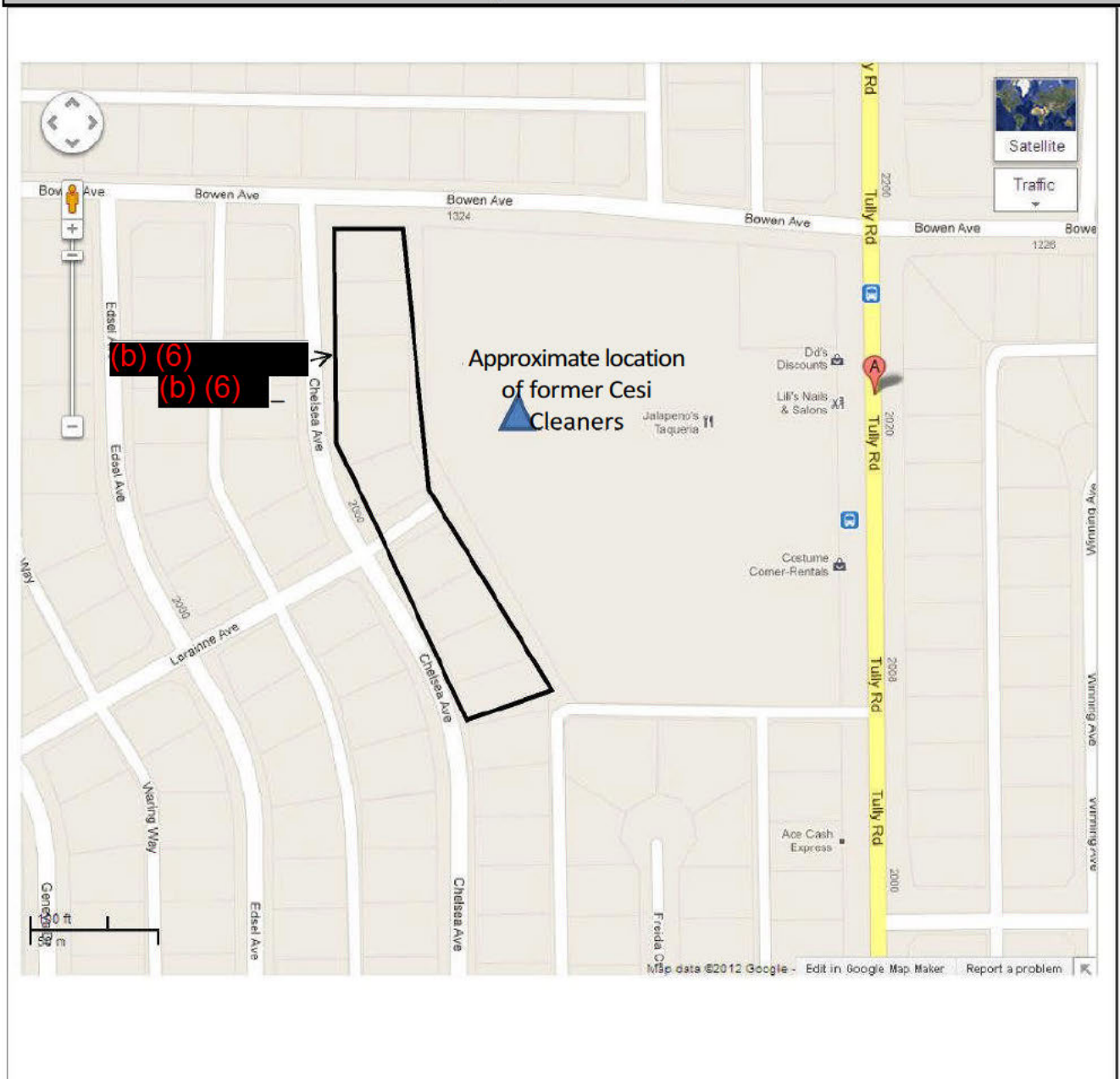
One 24-hour composite indoor air sample and one 24 hour composite sample from a subsurface area (crawl-space, basement, etc.) will be collected at each residential location. Air samples inside residential structures will be collected from 3 to 5 feet above the floor surface at the approximate height of an adult or child's breathing zone, as appropriate. The indoor air sample will be collected from inside each residential structure at a specific location (i.e. living room, kitchen) determined in the field by the OSC. The selection of sampling locations within a structure is usually judgmental or biased toward the most susceptible room to vapor intrusion, or a location where exposure is most prolonged, like bedrooms and living rooms, or where the most sensitive individuals are (such as a nursery). One 24 hour composite air sample will be collected from an accessible area under residential structures. Any exceptions or deviations will be discussed with the FOSC prior to sampling and noted in the field notebook.

Additionally, samples will be collected from areas outside of the structures and outside the footprint of the suspected groundwater plume to better characterize COPC levels in ambient air. At least one ambient air sample will be collected to characterized ambient air COPC levels. During air sampling, 100 % clean certified summa canisters for Method TO-15 (SIM) will be collecting indoor or ambient air for approximately 24-hours. Appropriate quality assurance/quality control samples will be included.



**Sketch a map of the site and any areas of concern.** Indicate sampling locations or sampling areas in Figure A and included names. Use a scale that is meaningful for the sampling work covered under this plan. Sketch out where the samples will be collected and include sampling location names. Attach a local map to this plan if it is available.

**Figure A**  
**Sample Location Map**



### 3.2.3 Sample Labeling and Documentation

#### Sample Collection Media Labels

Sample labels or tags will clearly identify the particular sample and should include the following:

1. Site name
2. Time and date samples were taken
3. Sample preservation
4. Analysis requested (optional if sample is a canister)
5. Sample location and/or
6. Canister identification number
7. Initial and Final pressure measurements

Sample labels will be securely affixed to the sample container.

#### Chain of Custody Record

A chain of custody record will be maintained from the time the sample is taken to its final deposition. Every transfer of custody must be noted and signed for, and a copy of this record kept by each individual who has signed. When samples (or groups of samples) are not under direct control of the individual responsible for them, they must be stored in a secured container sealed with a custody seal.

The chain of custody record should include (at minimum) the following:

1. Sample identification number
2. Canister identification number
3. Analysis requested
4. Sample date and time
5. Names(s) and signature(s) of sampler(s)
6. Signature(s) of any individual(s) with control over samples
7. Canister identification number
8. Initial and Final pressure measurements
9. Collection air volume if collected with cartridge or tube

#### Custody Seals

Custody seals demonstrate that a sample container has not been tampered with or opened. Boxes or envelopes with air sample are sealed, not individual canisters or tubes. The individual in possession of the sample(s) will sign and date the seal, affixing it in such a manner that the container cannot be opened without breaking the seal. The name of this individual, along with a description of the samples' packaging, should be noted in the field book.

All sample documents will be completed legibly in ink. Any corrections or revisions will be made by lining through the incorrect entry and by initialing the error. These include the logbooks, the chain of custody forms, this field QASP and any other tracking forms.

Field Logbook

The field logbook is essentially a descriptive notebook detailing site activities and observations so that an accurate account of field procedures can be reconstructed in the writer's absence. All entries will be dated and signed by the individuals making the entries and will include the following:

1. Site name and project number
2. Names of sampling personnel
3. Dates and times of all entries (military time preferred)
4. Descriptions of all site activities, especially sampling start and ending times. Include site entry and exit times
5. Noteworthy events and discussions
6. Weather conditions
7. Site observations
8. Identification and description of samples and locations
9. Subcontractor information and names of on-site personnel
10. Date and time of sample collections, along with chain of custody information
11. Record of photographs
12. Site sketches
13. Exact times of various activities and occurrences related to sampling
14. Deviations from standard procedures or methods and the rationale for the deviations.

The field log sheets are used for VI assessment. The sheet template is presented as at the end of this template

### 33 Analysis

#### 3.3.2 Analysis Procedures and Summary

Check boxes of methods used for analysis. The analytical methods per sample and sample location are presented in Table D.

X Volatile organic compounds (SUMMA Canisters, GC) [ TO-15] ▫

Volatile organic compounds (adsorbent tubes, GC) [ TO-18]

▫ Volatile organic compounds (Passive Collection)

▫ Volatile organic compounds by:

### 34 Analytical Methods and Procedures

The analytical methods per sample and sample location are presented in Table D. General field QC considerations and requirements are presented in Table E.

<b>Table D</b> <b>Sample Locations and Data Objective</b> <b>Summary</b> <b>Indicate Method-- U.S. EPA TO-15 or TO -18</b>			
<b>Sampling Locations and Identifiers should correspond to location indicated on Figure A</b>			
<b>Sample Location(s)( should match with 3.3.1 and Figure A)</b>	<b>Sample Identifiers</b>	<b>Data Category</b> <b>Refer to Section 2.3</b>	<b>Number of Samples</b>
Indoor samples of Residences on Chelsea Ave.	CS- CHL-XXX-IND-Date-001 (XXX indicates Address identifier)	Definitive	5/ 6-liter canister
Subfloor Samples of Residences on Chelsea Ave	CS- CHL-XXX-SF-Date-001	Definitive	5/ 6-liter canister
Ambient	CS- Street address of ambient location-AMB-Date (indicate reference or background)	Definitive	1/ 6-liter canister
Field Blank	CS-Blank-Date	Definitive	1/ 6-liter canister
Duplicate Indoor Air Sample Location	CS- CHL-XXX-IND-Date-1001	Definitive	1/ 6-liter canister



**36 Quality Assurance and Quality Control**

General field QA/QC considerations and requirements are presented in Table E.

**Table E**  
**Quality Control Samples and Data Quality Indicator Goals**

QC Sample	Number/Frequency	Data Quality Indicator Goals & Evaluation Criteria	Comments/ Number of samples to be collected
FIELD SPECIFIED QA/QC			
Canister Certification	On each Canister used for sampling	Must be at COPC concentrations that are less the MDL.	13/ 6-liter canister
Canister Pressure Check	Each Canister before and after sample collection	If the difference between lab pressure and initial pressure is greater than $\pm 10$ percent, then the canister can not be used.	13
Field Canister Blanks	1 per day	Should be at COPC concentrations that are less the MDL.	1/ 6-liter canister only
Ambient Air Reference sample	At least one ambient air sample should be collected from an upwind location not known to be impacted by area of concern	Expected to be at COPC concentration < indoor air or soil vapor samples.	Not submitted
Ambient Air Background sample	At least one ambient air sample should be collected from outside of structure in the area of concern	Expected to be at COPC concentration < indoor air or soil vapor samples.	1/ 6-liter canister only
Equipment Blanks	1 per SDG, per matrix, per method Only when the use of decontaminated non-dedicated equipment is involved.	Expected to be at COPC concentration < indoor air samples.	Not Required
Field Duplicates or Replicates	1 per SDG, per matrix, per method. As needed by sampling objectives. The procedure for collecting duplicate samples can greatly effect the reproducibility.	35% RPD <sup>2</sup>	1/ 6-liter canister only
SELECTED LABORATORY QA/AC			
Method Blank	1 per SDG, per matrix, per method	Std's and samples should be at least 3 times the blank.	Mandatory.
Matrix Spike or Laboratory Control Standards (LCS)	1 per SDG, per matrix, per method on field designated sample.	75 -125 %R	LCS for TO-15.
Matrix Spike Duplicate or Laboratory Control Standards Duplicate (LCSD)	1 per SDG, per matrix, per method on field designated sample.	<20 RPD for organics;	LCSD for TO-15.
Internal Standards	All samples	50 -200 %R	All analyses only.
PE or second Source Reference Standards	1 per SDG, per matrix, per method	75 -125 %R	If available.

<sup>1</sup> SDG = Sample Delivery Group (Maximum 20 samples)<sup>2</sup> RPD = Relative Percent Difference<sup>3</sup> %R = Percent Recovery

#### 4.0 Project Organization and Responsibilities

##### 4.1 Schedule of Sampling Activities

Sampling activities are summarized in Table F.

<b>Table F</b> <b>Proposed Schedule of Work For Soil/Water Sampling Activities</b>		
<b>Activity</b>	<b>Start Date</b>	<b>End Date</b>
Air Sampling	7/31/12	8/1/12

##### 4.2 Project Laboratories

Laboratories used for this project are summarized in Table G.

<b>Table G</b> <b>Laboratories</b>	
<b>Lab Name/ Location</b>	<b>Methods</b>
Air Toxics Laboratory	TO-15

### 4.3 Project Personnel and Responsibilities

Personnel and responsibilities are summarized in Table H.

Table H Sample Team(s) Personnel		
Personnel and Organization		Responsibility
(b) (6)		Sampling Team Member
Project Manager/Sampling Team Member		



## PHOTOGRAPHIC LOG

### Cesi Cleaners

Modesto, Stanislaus County, California

**Date:**  
7/31/2012

**Description:**  
START placed a  
sampling canister with  
a wand into a crawl  
space.

**Direction:** South

**Photographer:** S.

(b) (6)

(b) (6)



(b) (6)

**Date:**  
7/31/1012

**Description:** Co-  
located samples  
placed in a child's  
nursery.

**Direction:** Southeast

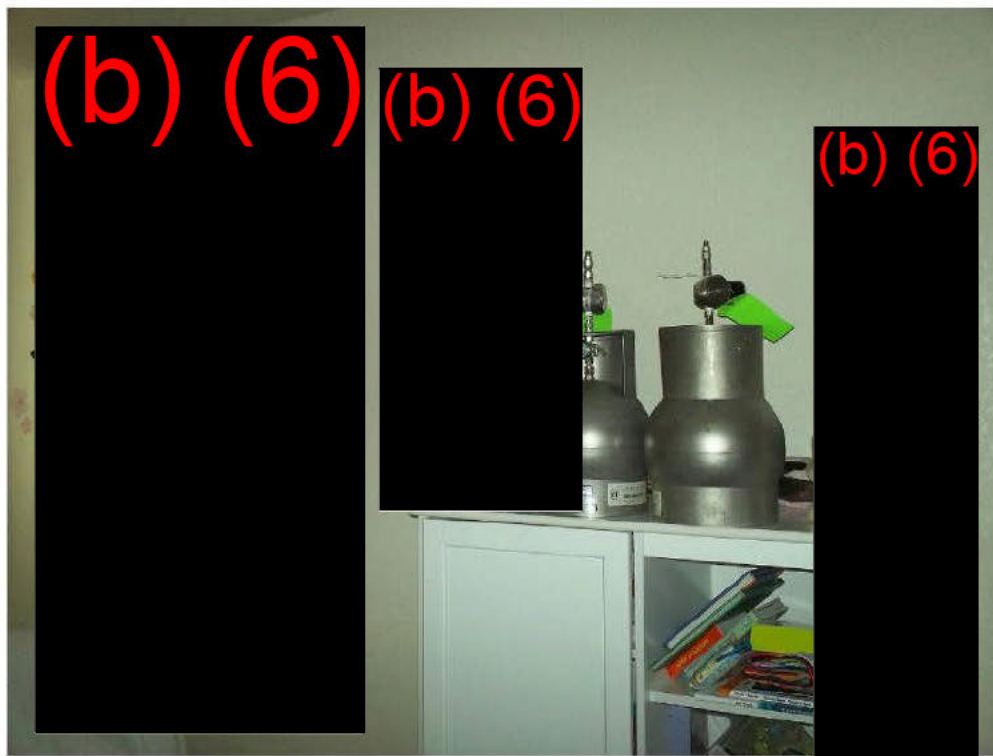
**Photographer:** S.

(b) (6)

(b) (6)

(b) (6)

(b) (6)







## PHOTOGRAPHIC LOG

### Cesi Cleaners

Modesto, Stanislaus County, California

**Date:**  
7/31/2012

**Description:**  
Where possible  
crawlspaces were  
accessed through  
trapdoors in the closets,  
such as this one.

**Direction:** DOWN

**Photographer:** S.

(b) (6)

(b) (6)



**Date:**  
7/31/2012

**Description:**  
The ambient air sample  
was tucked into a  
shrubby in the front  
yard to discourage  
theft

**Direction:** West

**Photographer:** S.

(b) (6)







## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Cesi Cleaners	Location: Modesto, CA
Project Number: 002693.2191.01RA	TDD: 02-09-12-07-0006

Laboratory: Air Toxics LTD.	Lab Project Number: 1208084
Sampling Dates: 7/31/2012 thru 8/1/2012	Sample Matrix: Air
Analytical Method: VOCs by Mod TO-15 Full Scan /SIM	Data Reviewer: (b) (6)

### REVIEW AND APPROVAL:

Data Reviewer: (b) (6) Date:      A 2  
Technical QA Reviewer: (b) (6) D a t e :  
Project Manager: (b) (6) Date:                     

### SAMPLE IDENTIFICATION:

Sample No.	Sample I.D.	Laboratory I.D.
1	CS-CHL-1938-1ND-001	1208084- 1A & -1B
2	CS-CHL-1938-SF-002	1208084- 2A & -2B
3	CS-CHL-2002-I ND-003	1208084- 3A & -3B
4	CS-CHL-2002-SF-004	1208084- 4A & -4B
5	CS-CHL-1934-I ND-005	1208084- 5A & -5B
6	CS -CHL-1934-IND-1005	1208084- 6A & -6B
7	CS-CHL-1934-SF-006	1208084- 7A & -7B
8	CS-CHL-1930-IND-007	1208084- 8A & -8B
9	CS-CHL-1930-SF-008	1208084- 9A & -9B
10	CS-CHL-2009-AMB	1208084-10A & -10B
11	CS-Blank-8112	1208084- 11A& -11B
12		
13		
14		
15		
16		
17		
18		
19		
20		

## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

<b>Site Name:</b> Cesi Cleaners	<b>Location:</b> Modesto, CA
<b>Project Number:</b> 002693.2191,01RA	<b>TDD:</b> 02-09-12-07-0006

### DATA PACKAGE COMPLETENESS CHECKLIST:

#### Checklist Code:

- X   Included: no problems
- Included: problems noted in review
- O   Not Included and/or Not Available
- NR  Not Required
- RS  Provided As Re-submission

#### Case Narrative:

- X   Case Narrative present (EPA QA notes were provided in package)

#### Quality Control Summary Package:

- X   Data Summary sheets
- NR  Matrix Spike/Spike Duplicate Recoveries
- X   Laboratory Control Sample Recoveries
- X   Method Blank Summaries
- X   GC/MS Tuning and Mass Calibration
- X   Initial Calibration Data
- X   Continuing Calibration Data
- X   Surrogate Compound Recovery Summary
- X   Internal Standard Area Summary

#### Sample and Blank Data Package Section

- X   Reconstructed Ion Current (RIC) Chromatogram
- X   Quantitation Reports
- X   Raw and Enhanced Mass Spectra
- X   Reference Mass Spectra for Target Compounds
- X   Mass Spectral Library Search for TICs

#### Raw QC Data Package Section

- X   DFTPP and/or BFB mass spectra and mass listings
- X   RIC Chromatogram for Standards, LCS, and MS/MSD
- X   Quantitation Reports for Standards, LCS, and MS/MSD
- X   List of Instrument Detection Limits
- X   Chain-of-Custody Records
- X   Canister Pressure Records
- X   Sample Preparation and Analysis Run Logs
- X   Canister Certifications

## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

<b>Site Name:</b> Cesi Cleaners	<b>Location:</b> Modesto, CA
<b>Protect Number:</b> 002693.2191.01RA	<b>TDD:</b> 02-09-12-07-0006

### DATA VALIDATION SUMMARY

The data were reviewed following procedures and limits specified in the EPA OSWER directive, *Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan and Data Validation Procedures* (EPA/540/G-901004, OSWER Directive 9360.4-01, dated April 1990), in the START QAPP, on in the site specific sampling plan.

Indicate with a YES or NO whether each item is acceptable without qualification:

1	Holding Times, Pressure, Canister Certifications	Yes
2	GC/MS Tuning Criteria Y e s	
3	Initial Calibrations Y e s	
4	Continuing Calibrations Y e s	
5	Laboratory Control Sample Y e s	
6	Matrix Spike/Matrix Spike Duplicate N A	
7	Blanks and Background Samples Y e s	
8	Internal Standards Y e s	
9	Duplicate Analyses Y e s	
10	Analyte Identification Y e s	
11	Analyte Quantitation	No
12	Overall Assessment of Data	NO

**Comments:** NA: Not analyzed

## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Cesi Cleaners	Location: Modesto, CA
Project Number: 002693.2191.01RA	TDD: 02-09-12-07-0006

### 1. HOLDING TIMES, PRESSURES AND CANISTER CERTIFICATION

HOLDING TIMES	PRESSURES	CANISTER CERTIFICATION
X Acceptable	X Acceptable	X Acceptable
Acceptable with	Acceptable with	Acceptable with
qualification	qualification	qualification
Unacceptable	Unacceptable	Unacceptable

The sample canister were cleaned and tested according to the procedure in TO-15 method and certification was supplied except as noted under Comments. The sample canisters were pressure tested before shipment, before sampling, after sampling and prior to analysis except as noted under Comments. There were no unexpected losses of pressure in canister. Samples were pressurized prior to analysis. Samples were extracted and analyzed within required holding times except as noted under Comments. In addition, no problems were identified with regard to sample custody unless specified.

For those samples analyzed outside holding time requirements, the detected results have been qualified as estimated (J), and the non-detected results have been qualified either as estimated (UJ) or rejected (R) based on the reviewer's judgment. Detected results from canister with out field pressure measurement should be qualified either as estimated (J) or rejected (R) based on the reviewer's judgment. Unexplained pressure losses in canister > 10 % should be qualified and potentially rejected (R). Detected results from non-certified canisters should be qualified either as estimated (J) or rejected (R) based on the reviewer's judgment.

**ITO-15: :30 daYs (from collection) for analysis.**

**Comments:** All samples were analyzed 23 days from collection. Pressure in laboratory for canisters and the canister certifications were acceptable.

### 2. GC/MS INSTRUMENT PERFORMANCE CRITERIA

Yes	BFB (EPA 8260B) or DFTPP (EPA 8270C) has been run for every 12 hours of sample analysis per instrument.
Yes	The BFB or DFTPP ion abundance criteria indicated in EPA15401G-901004 have been met for each instrument.

**Comments:**

## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Cesi Cleaners	Location: Modesto, CA
Protect Number: 002693.2191.01RA	TDD: 02-09-12-07-0006

### 3. INITIAL CALIBRATIONS

Acceptable

Acceptable with qualification

Unacceptable

Unless flagged below, a 5-point initial calibration was run. In addition, average Relative Response Factor (RRF), and percent relative Standard Deviation (%RSD) values were within control limits (average RRF  $\geq 0.05$ ; %RSD  $\leq 30$ ). For analytes which exceeded the %RSD control limit, associated detected results are qualified as estimated (J). If the low calibration level was not detected, the non-detected results are qualified (UJ). For analytes which exceeded the RRF control limit, associated detected results are qualified as estimated (J) and the non-detected results are qualified as rejected (R).

**Comments:** Percent relative standard deviation values were of target analytes were within the control limits.

### 4. CONTINUING CALIBRATIONS

X Acceptable

Acceptable with qualification

Unacceptable

Unless flagged below, continuing calibrations were performed at the beginning and at the end of any group of samples and at least every 12 hours. In addition, Percent Difference (%D) values were within the control limit (%D  $\leq 30$ ). For analytes which exceeded the %D control limit, associated detected results are qualified as estimated (J). In cases where the %D is very high and indicates a severe loss of instrument sensitivity, the associated non-detected results may be qualified as estimated (UJ) or rejected (R) based on the professional judgment of the reviewer,

**Comments:** Percent difference values of target analytes were within the control limits

## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Cesi Cleaners	Location: Modesto, CA
Project Number: 002693.2191.01RA	TDD: 02-09-12-07-0006

### 5. LABORATORY CONTROL SAMPLE

X      Acceptable  
\_\_\_\_ Acceptable with qualification  
\_\_\_\_ Unacceptable  
\_\_\_\_ No Laboratory Control Samples Analyzed

Laboratory control sample recoveries are used for a qualitative indication of accuracy (bias) independent of matrix effects. LCS recovery limits should either be specified in the Sampling and Analysis Plan or can be established by the laboratory. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J).

**Comments:** LCS recoveries were within the control limits generated by the laboratory.

### 6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The use of matrix spikes is not required by EPA Method TO-15 and is analyzed only if it is specifically requested by the client.

\_\_\_\_ Acceptable  
\_\_\_\_ Acceptable with qualification  
\_\_\_\_ Unacceptable  
NR      Matrix Spike/Matrix Spike Duplicates Analyses were not requested

Matrix spike and matrix spike duplicate recoveries are used for a qualitative indication of accuracy (bias) and precision due to matrix effects. The RPD between the recoveries is used for a qualitative indication of precision. Spike recovery limits of 80% to 120% are specified in EPA15401G-901004 or the START QAPP or in the site specific sampling plan. The relative percent difference (RPD) of 25 RPD is also specified in the QAPP, SAP, or QASP. For analytes which exceeded these control limits, associated detected results are qualified as estimated (J). At the discretion of the reviewer, other limits may be used only if justification can be provided.

**Comments:** Not required or requested by this method.



## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Cesi Cleaners	Location: Modesto, CA
Project Number: 002693.2191.01RA	TDD: 02-09-12-07-0006

### 7. BLANKS AND BACKGROUND SAMPLES

☒ Acceptable

☐ Detection Limits Adjusted

The following blanks were analyzed:

☒ Method (preparation) Blanks

☒ Field Blanks

☐ Instrument Blanks

☐ Rinsate Blanks

☐ Background Samples

☐ VOA Trip Blanks

Preparation (method) blanks were prepared for each batch of samples extracted. A preparation blank was analyzed after every continuing calibration standard, prior to sample analysis unless noted below. Any compound detected in the sample and also detected in any associated blank, must be qualified as non-detect (U) when the sample concentration is less than 5x the blank concentration.

**Comments:** No contamination was found in the method blank and the field blank at reporting limit levels.

### 8. SURROGATE COMPOUNDS

☒ Acceptable

☐ Acceptable with qualification

☐ Unacceptable

Surrogate compound recoveries for samples analyzed within a sample group must be within the limits specified in the method. If the surrogate recovery is between 10% and the lower limit, the associated detected results are qualified as estimated (J) and the non-detected results are qualified as estimated (UJ). If the surrogate recovery is <10%, the associated detected results are qualified as estimated (J) and the non-detected results are rejected (R). If the surrogate recovery is above the upper limit, the associated detected results are qualified as estimated (J). Surrogate recoveries which exceeded these limits are noted below and the associated results are qualified on the attached sample report forms.

**Comments:** Surrogate recoveries were within the control limits.

## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

<b>Site Name:</b> Cesi Cleaners	<b>Location:</b> Modesto, CA
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### 9. INTERNAL STANDARDS

☒ **Acceptable**  
☐ **Acceptable with qualification**  
☐ **Unacceptable**

Internal Standard area counts for samples analyzed within a sample group must be within the range of 50% to 200% of the internal standard area for the continuing calibration. If the internal standard area is between 10% and 50% of this value, the associated detected results are qualified as estimated (J) and the non-detected results are qualified as estimated (UJ). If the internal standard area is <10% of the calibration area, both the detected and non-detected results are rejected (R). If the internal standard area is >200% of the calibration area, the associated detected results are qualified as estimated (J). Internal standards which exceeded these limits are noted below and the associated results are qualified on the attached sample report forms.

**Comments:** The internal standard areas were within the range of 50% to 200% of the internal standard area for the continuing calibration.

### 10. DUPLICATE ANALYSES

Field Duplicates	Laboratory Duplicates	Laboratory Control Duplicates
<input checked="" type="checkbox"/> <b>Acceptable</b>	<b>Acceptable</b>	<b>Acceptable</b>
<input type="checkbox"/> <b>Acceptable with qualification</b>	<b>Acceptable with qualification</b>	<b>Acceptable with qualification</b>
<input type="checkbox"/> <b>Unacceptable</b>	<b>Unacceptable</b>	<b>Unacceptable</b>
<b>Not Analyzed</b>	<b>Not Analyzed</b>	<b>Not Analyzed</b>

Calculate the relative Percent Difference (RPD) between the members of duplicate pairs using the equation indicated below. Qualify the results as estimated (J) for any analyte whose RPD exceeds that specified in the Sampling and Analysis Plan.

$$RPD = \frac{2(Value.1 - Value.2)}{Value.1 + Value.2} \times 100\%$$

## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

<b>Site Name: Cesi Cleaners</b>	<b>Location: Modesto, CA</b>
<b>Project Number: 002693.2191.01RA</b>	<b>TDD: 02-09-12-07-0006</b>

Analyte (ug/m3)	CS-CHL-1934-IND-005	CS-CHL-1934-IND-1005	RPD (%)
Freon 12	1.9	2.2	15
Chloromethane	1.3	1.3	0
Ethanol	260	250	4
Acetone	41	46	12
2-Propanot	290	270	7
Hexane	<0.67	0.99	Not calculated
Cyclohexane	0.70	0.78	11
Heptane	<0.88	1.2	Not calculated
2-Butanone	<2.8	3.5	Not calculated
Chloroform	1.6	1.8	12
Benzene	0.44	0.54	20
1,2-Dichloroethane	<0.15	0.18	Not calculated
Toluene	4.3	4.2	2
Tetrachloroethene	0.67	0.67	0
Ethyl benzene	0.78	0.80	3
m,p-Xylene	1.6	1.7	6
o-Xyleno	0.67	0.78	15

**Comments:** All RPDs were within accepted control limits. (<35%)

### 11. ANALYTE IDENTIFICATION

**Evaluate the ion profiles for the sample analytes and compare them to the library ion profiles provided by the laboratory. Note any identifications which are not sufficiently supported by comparison to known ion profiles.**

**Comments:** The analyte identification was acceptable.

### 12. ANALYTE QUANTITATION

**Confirm that analyte quantitation was performed correctly using the following formulas:**

## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

Site Name: Cesi Cleaners	Location: Modesto, CA
Project Number: 002693.2191.01RA	TOD: 02-09.12-07-0006

#### TO-15 Air Samples.

ppbv =  $\frac{\text{area concentration of internal standard in ppbV}}{(\text{internal standard area})(RF)}$

#### TO-15 of Air samples:

$\mu\text{g/l} = \text{CUB} \times \frac{\text{Theoretical (ppbv)}}{(\text{molecular weight of compound})}$

24

**Comments:** Analyte quantitation was acceptable. The laboratory used E qualifier on Ethanol and/or 2-Propanol results in samples CS-CHL-1938-IND-001, CS-CHL-2002-IND-003, CS-CHL-2002-SF-004, CS-CHL-1934-IND-005, CS-CHL-1934-IND-1005, and CS-CHL-1930-IND-007 because the concentration was exceeding the calibration range. The validator checked the peaks and they were not saturated, therefore, the results were qualified as estimated as (J).

Sample CS-CHL-1934-IND-005

Benzene:  $((20128) (5 \text{ ppbv})) / ((914352) (1.52942)) = 0.0719665 \text{ ppbv}$ .  
 $(0.0719665 \text{ ppbv}) (1.90) = 0.1367 \text{ ppbv}$ . Lab reported 0.14 ppbv.

Toluene:  $((168071) (5 \text{ ppbv})) / ((914352) (1.54174)) = 0.596126 \text{ ppbv}$ .  
 $(0.596126 \text{ ppbv}) (1.90) = 1.1326 \text{ ppbv}$ . Lab reported 1.1 ppbv.

Tetrachloroethene:  $((7169) (5 \text{ ppbv})) / ((853317) (0.80338)) = 0.052287 \text{ ppbv}$ .  
 $(0.052287 \text{ ppbv}) (1.90) = 0.099346 \text{ ppbv}$ . Lab reported 0.099 ppbv.

### 13. OVERALL ASSESSMENT OF DATA

On the basis of this review, the following determination has been made with regard to the overall data usability for the specified level.

☐ Acceptable  
☒ Acceptable with Qualification  
☐ Rejected

Accepted data meet the minimum requirements for the following EPA data category:

☐ ERS Screening  
☐ Non-definitive with 10 % Confirmation by Definitive Methodology  
☐ Definitive, Comprehensive Statistical Error Determination was performed.  
☒ Definitive, Comprehensive Statistical Error Determination was not performed.

**Any qualifications to individual sample analysis results are detailed in the appropriate**

## ANALYTICAL DATA REVIEW SUMMARY

### Tier 2 Validation

<b>Site Name:</b> Cesi Cleaners	<b>Location:</b> Modesto, CA
<b>Project Number:</b> 002693.2191.01RA	<b>TDD:</b> 02-09-12-07-0006

section above or appear under the comments section below. In cases where several QC criteria are out of specification, it may be appropriate to further qualify the data usability. The data reviewer must use professional judgment and express concerns and comments on the data validity for each specific data package.

**Comments:** Data as reported are valid

### 14. USABILITY OF DATA

**A. These data meet quality objectives stated in the QASP Titled -- Emergency** Response and START Time Critical Quality Assurance Sampling Plan for Vapor Intrusion Assessment and Associated Sampling, Cesi Cleaners, Modesto, CA dated July 30, 2012.

**B These data are considered usable for the following data use objectives stated in the QASP.**

1. To compare with site-specific action levels or risk-based action levels (e.g., SSL, MRL, ESL, etc) to determine if an acute or chronic health threats exist.

### 15. DOCUMENTATION OF LABORATORY/Field CORRECTIVE ACTION

**Problem:** No problem requiring corrective action was found.

**Resolution:** Not required.

**Attached are copies of all data summary sheets, with data qualifiers indicated, and a copy of the chain of custody for the samples.**